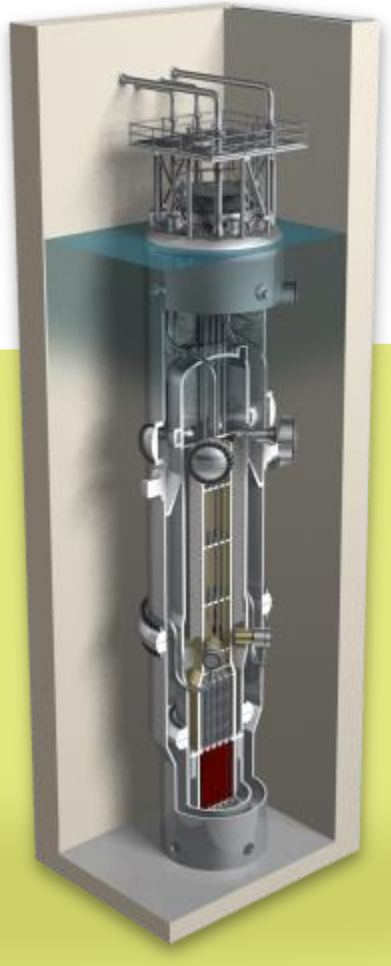


Pathways to Decarbonization

Chris Colbert

Chief Strategy Officer

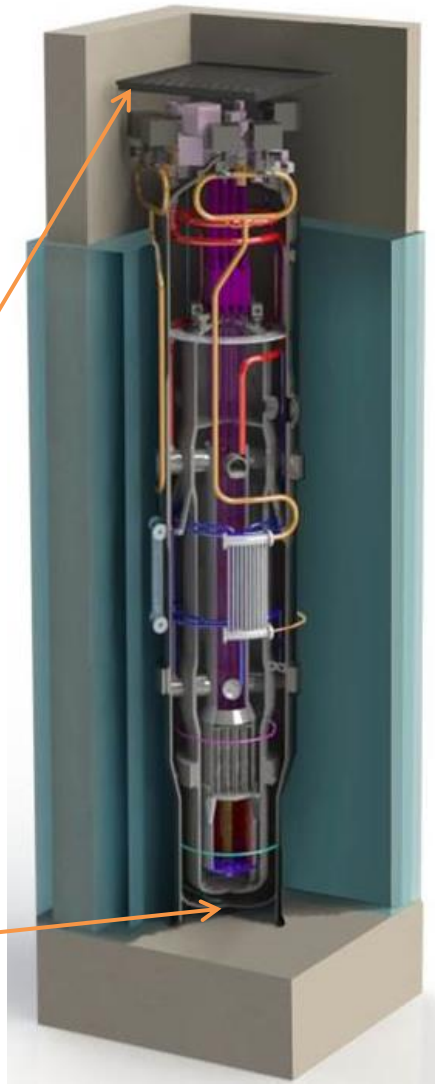
June 9, 2016

Nonproprietary

NuScale Power™

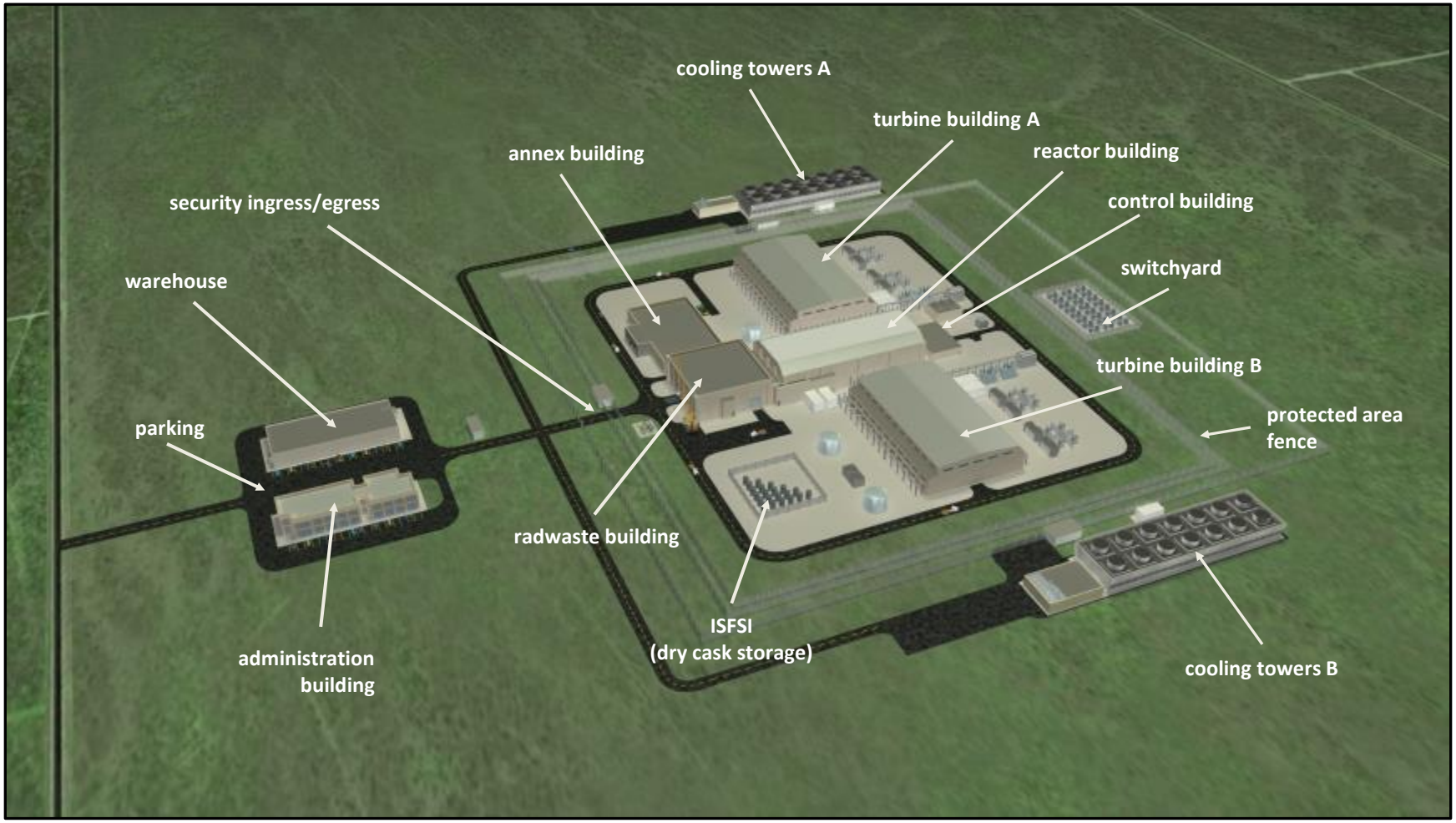
What is a NuScale Power Module?

- A NuScale Power Module (NPM) includes the reactor vessel, steam generators, pressurizer and containment in an integral package that eliminates reactor coolant pumps and large bore piping (no LB-LOCA)
- Each NPM is 50 MWe and factory built for easy transport and installation
- Each NPM has its own skid-mounted steam turbine-generator and condenser
- Each NPM is installed below-grade in a seismically robust, steel-lined, concrete pool
- Triple Crown of Safety – NPMs safely shutdown without operator action, power or external water and remain so for an unlimited time
- NPMs can be incrementally added to match load growth - up to 12 NPMs for 600 MWe gross (~570 net) total output



NuScale Power™

Site Aerial View



Basic Plant Parameters

Overall Plant	
▪ Net electrical output	Up to 570 MWe (nominal)
▪ Plant thermal efficiency	> 31%
▪ Number of power generation units	Up to 12
▪ Nominal plant capacity factor	> 95%
▪ Total plant protected area ▪ Total owner controlled area	~32 acres ~70 acres
Power Generation Unit	
▪ Number of reactors	One
▪ Gross electrical output	50 MWe
▪ Steam generator number	Two independent tube bundles (50% capacity each)
▪ Steam generator type	Vertical helical coil tube (secondary coolant boils inside tube)
▪ Steam cycle	Superheated
▪ Turbine throttle conditions	3.3 MPa (475 psia)
▪ Steam flow	67.5 kg/s (536,200 lb/hr)
▪ Feedwater temperature	149° C (300 °F)
Reactor Core	
▪ Thermal power rating	160 MWth (gross)
▪ Operating pressure	12.7 MPa (1850 psia)
▪ Fuel design	UO_2 (< 4.95% U^{235} enrichment); 37 half height 17x17 geometry lattice fuel assemblies; AREVA M5 advanced cladding material; negative reactivity coefficients
▪ Refueling interval	24 months (capable of 48 months)

NuScale Diverse Energy Platform

SAFE

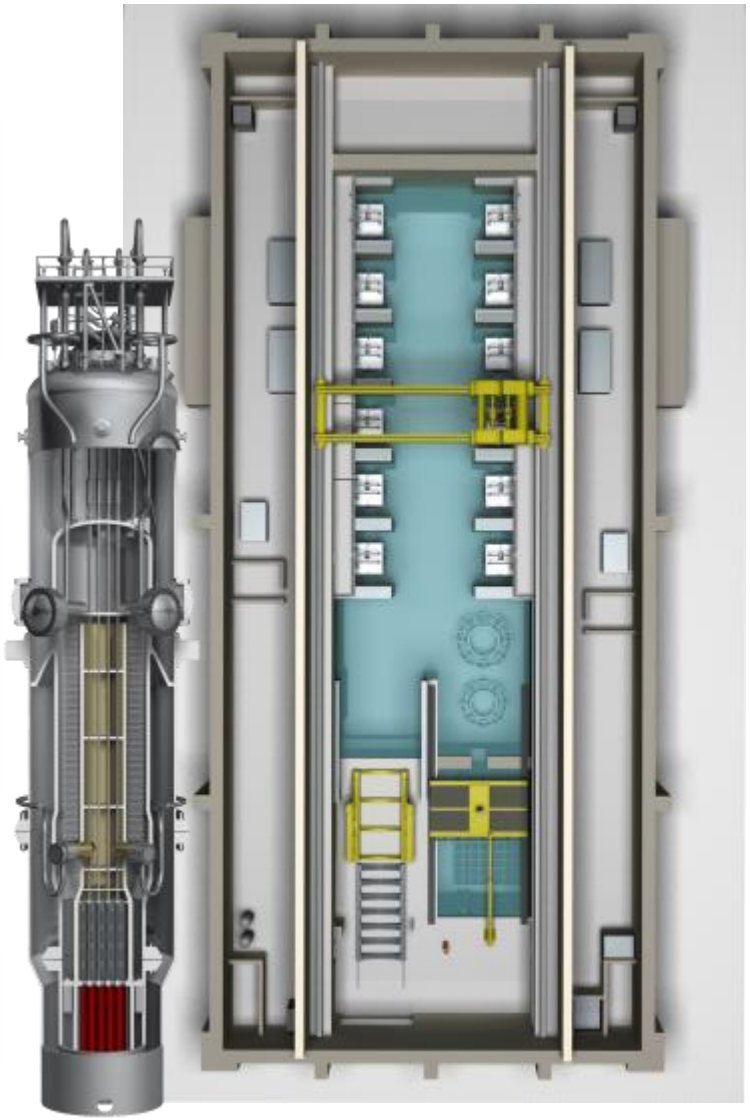
Central to the NuDEP concept is the NuScale power module which offers a new level of safety and affordability in nuclear.

SMALL

50 MWE/160 MWT per module makes it suitable for factory manufacturing, transportation and useful for a wide range of energy applications

SCALABLE

Multiple modules can be installed as needed



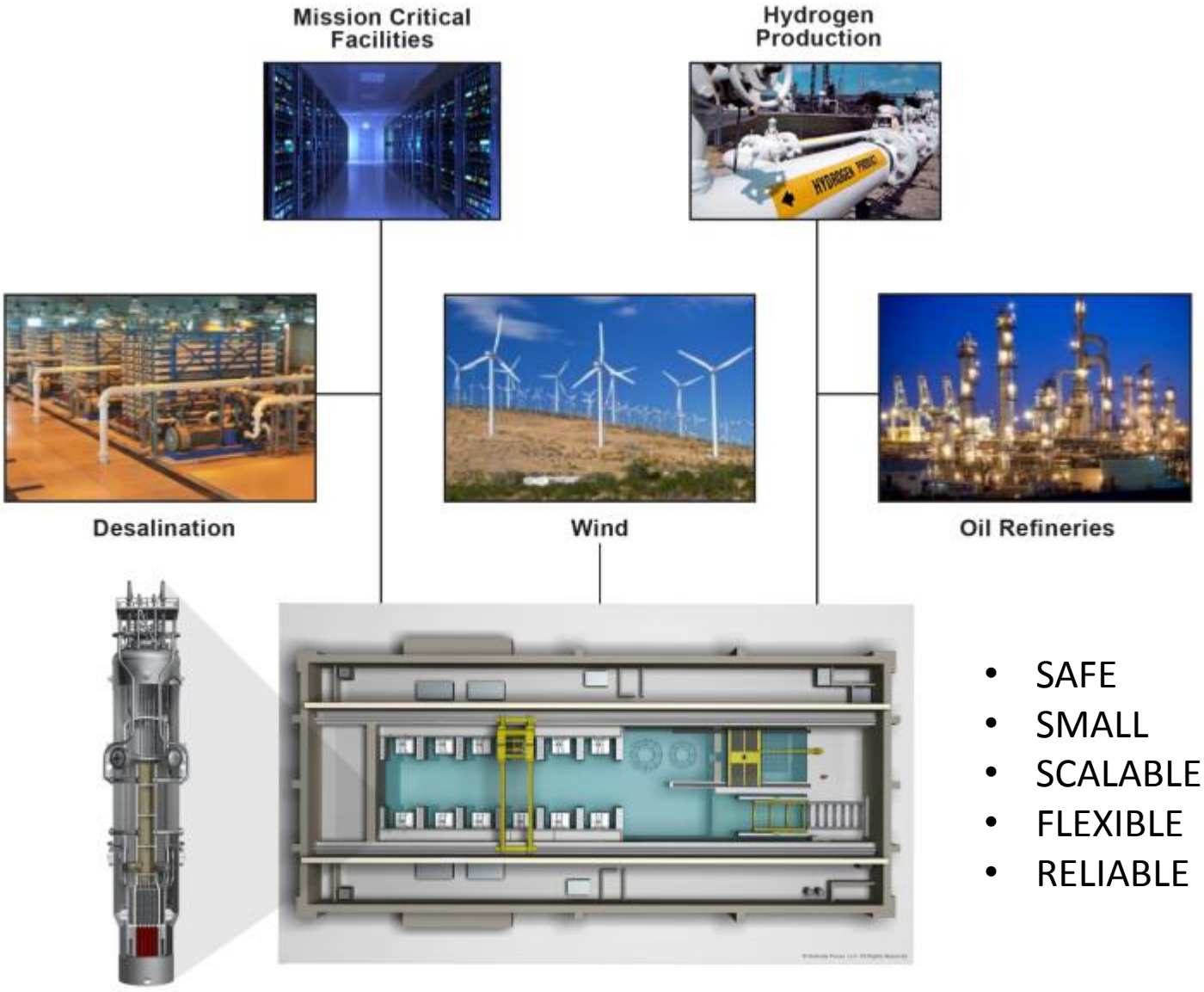
FLEXIBLE

Each module has rapid, intermediate and long-term load following capability for integration with variable processes. Modules can be independently configured for electricity or heat output.

RELIABLE

Multiple modules assure that a required plant power output can be produced with high reliability for mission critical processes. Similar in concept to the redundant array of independent disks (RAID) used in the computer industry

NuScale Diverse Energy Platform (NuDEP)



- SAFE
- SMALL
- SCALABLE
- FLEXIBLE
- RELIABLE

NuDEP- Completed Studies

Oil Refineries Study - Reduction of Carbon Emissions
(Fluor and NuScale)

10-Module Plant coupled to a 250,000 barrels/d refinery

Integration with Wind Study - Horse Butte Site
(UAMPS, ENW and NuScale)

1-Module dedicated to UAMPS 57.6 MW wind farm

Hydrogen Production Study – High-Temperature Steam Electrolysis
(INL and NuScale)

6-Module Plant for Emission Free Hydrogen Production to support a 1,200 MT/day ammonia plant

Desalination Study – Sized for the Carlsbad Site
(Aquatech and NuScale)

8-Module Plant can produce 50 Mgal/d (190K m^3/d) of clean water plus 350 MWe

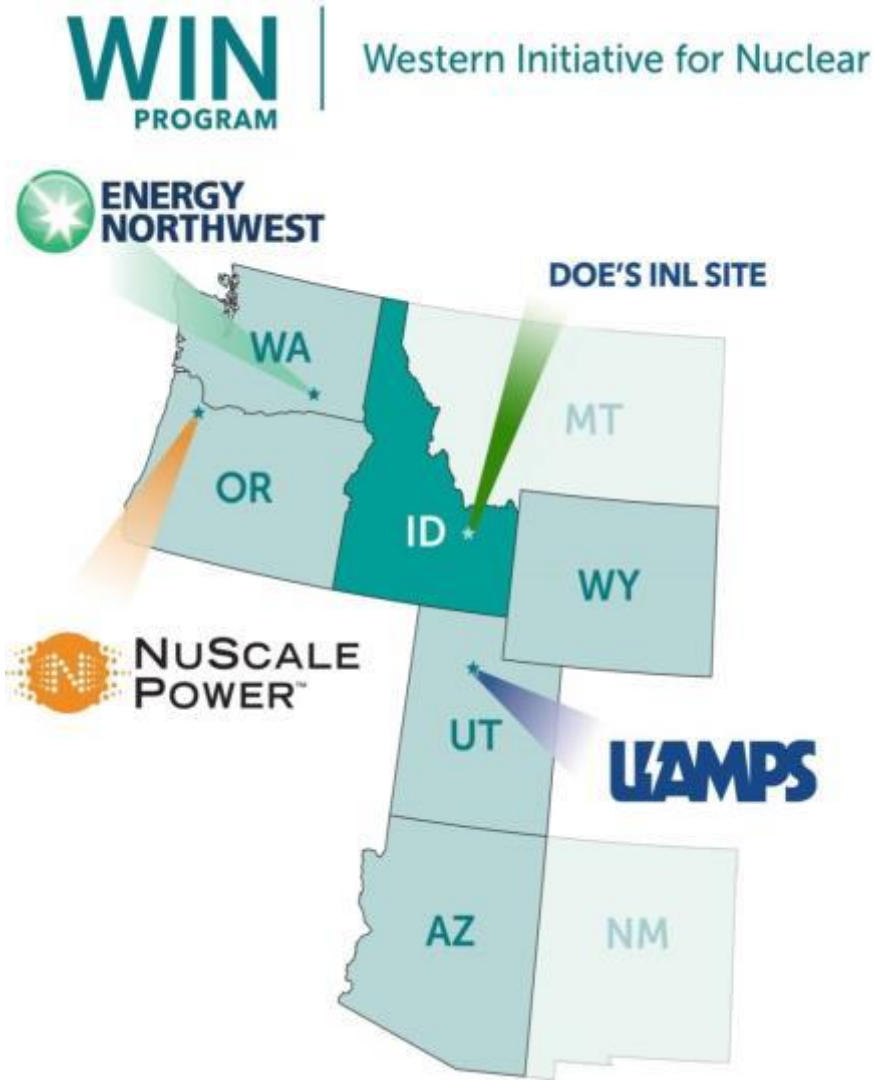
HES Challenges (in USA)

- Non-electric utility users have been unwilling to bear the risk of adopting nuclear power to their applications

- Limited NRC experience licensing non-electric utility applications

UAMPS CFPP - First NuScale Plant

- Utah Associated Municipal Power Systems (UAMPS) is the owner
- 600 MW, twelve module design
- U.S. DOE issued UAMPS CFPP a Site Use Permit to potentially utilize a portion of the INL Site for the UAMPS CFPP
- UAMPS CFPP has strong support from local, state and federal elected officials
- Commercial operation 2024-2025



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